

55. (New) A container capacitor comprising:

a lower electrode comprising an electropolished patterned metal layer having a bottom wall and vertical sidewalls extending upwardly therefrom;

an insulating layer provided over said electropolished patterned metal layer; and

an upper electrode provided over said insulating layer.

56. (New) The container capacitor of claim 55, wherein said electropolished patterned metal layer contains a material selected from the group consisting of noble metals, noble metal alloys and noble metal oxides.

57. (New) The container capacitor of claim 55, wherein said electropolished patterned metal layer has a thickness of approximately 50 to 300 Angstroms.

58. (New) The container capacitor of claim 55, wherein said electropolished patterned metal layer has a thickness of approximately 100 Angstroms.

59. (New) A container capacitor comprising:

a barrier conductive layer;

a lower electrode provided over said barrier conductive layer, said lower electrode comprising an electropolished patterned metal layer having a bottom and vertical sidewalls extending upwardly from said bottom, said lower electrode having a thickness of approximately 100 Angstroms;

a dielectric material provided over said electropolished patterned metal layer; and

an upper electrode provided over said insulating layer and wherein said lower electrode, said dielectric material and said upper electrode form a container capacitor.

60. (New) A container capacitor structure comprising:

an insulating layer provided over a substrate;

a plurality of openings provided in said insulating layer; and

a plurality of lower capacitor electrodes provided along the bottom and sidewalls of respective ones of said openings, said lower electrodes being formed as discrete electropolished metal layers.

61. (New) The capacitor structure of claim 60, wherein said capacitor structure further comprises a dielectric layer and upper electrode associated with each of said discrete lower electrodes.

62. (New) The capacitor structure of claim 60, wherein said electropolished lower capacitor electrodes have a thickness of approximately 50 to 300 Angstroms.

63. (New) The capacitor structure of claim 62, wherein said lower capacitor electrodes have a thickness of approximately 100 Angstroms.

64. (New) The capacitor structure of claim 60, wherein said lower capacitor electrodes contain platinum.

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REPLACEMENT CLAIMS

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29. (Amended) A semiconductor device comprising:

a substrate;

an insulating layer provided over said substrate; and

an electropolished patterned metal layer provided over said insulating layer, wherein said electropolished metal layer has a thickness of approximately 50 to 300 Angstroms and wherein a top surface of said electropolished metal layer is electropolished down to said insulating layer.

36. (Amended) A memory cell comprising:

① 2 an electropolished patterned metal layer provided over a substrate, said electropolished patterned metal layer having a thickness of approximately 50 to 300 Angstroms;

a transistor including a gate fabricated on said semiconductor substrate and including a source/drain region in said semiconductor substrate disposed adjacent to said gate; and

a container capacitor including a lower electrode, said lower electrode having a surface aligned over said source/drain region, said electropolished patterned metal layer forming said lower electrode.

44. (Amended) A processor-based system comprising:

a processor; and

an integrated circuit coupled to said processor, at least one of said integrated circuit and processor comprising a container capacitor including a lower electrode, said

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lower electrode comprising an electropolished patterned metal layer having a thickness of approximately 50 to 300 Angstroms.

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